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(54) CONSTRUCTION SCHEDULING SYSTEM

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(57) ABSTRACT

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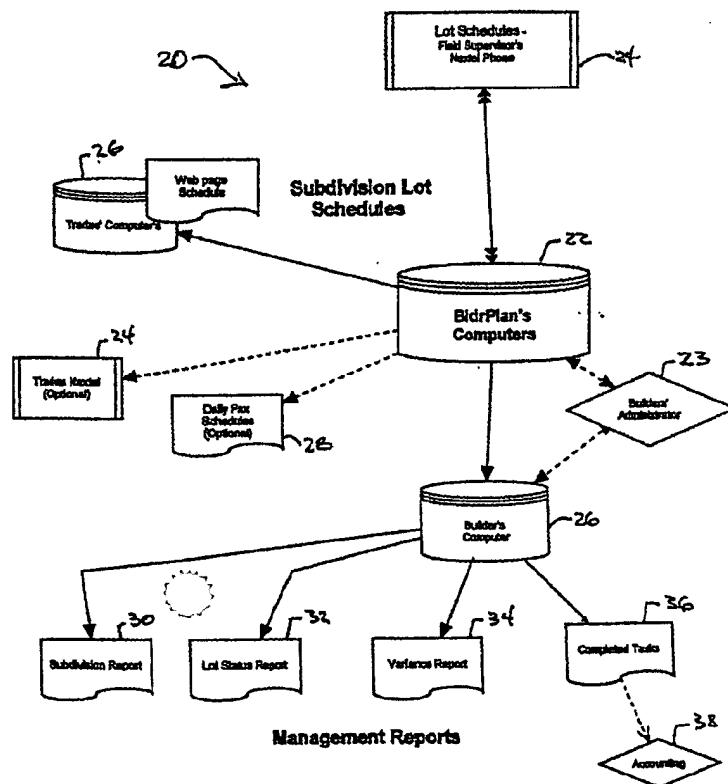
Related U.S. Application Data

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A system and process for scheduling a plurality of simultaneous construction projects includes at least one server computer connected to a computer network, software capable of scheduling multiple events among a plurality of construction projects, said software controlling said at least one server computer, and a plurality of field communication devices each device of said plurality having a display and being capable of wirelessly connecting through the computer network for interactively communicating with said at least one server computer through a security controlled access including a unique identifier corresponding to each individual field communication device. Field communication devices according to the invention preferably include geographic positioning capability to allow tracking of the device.



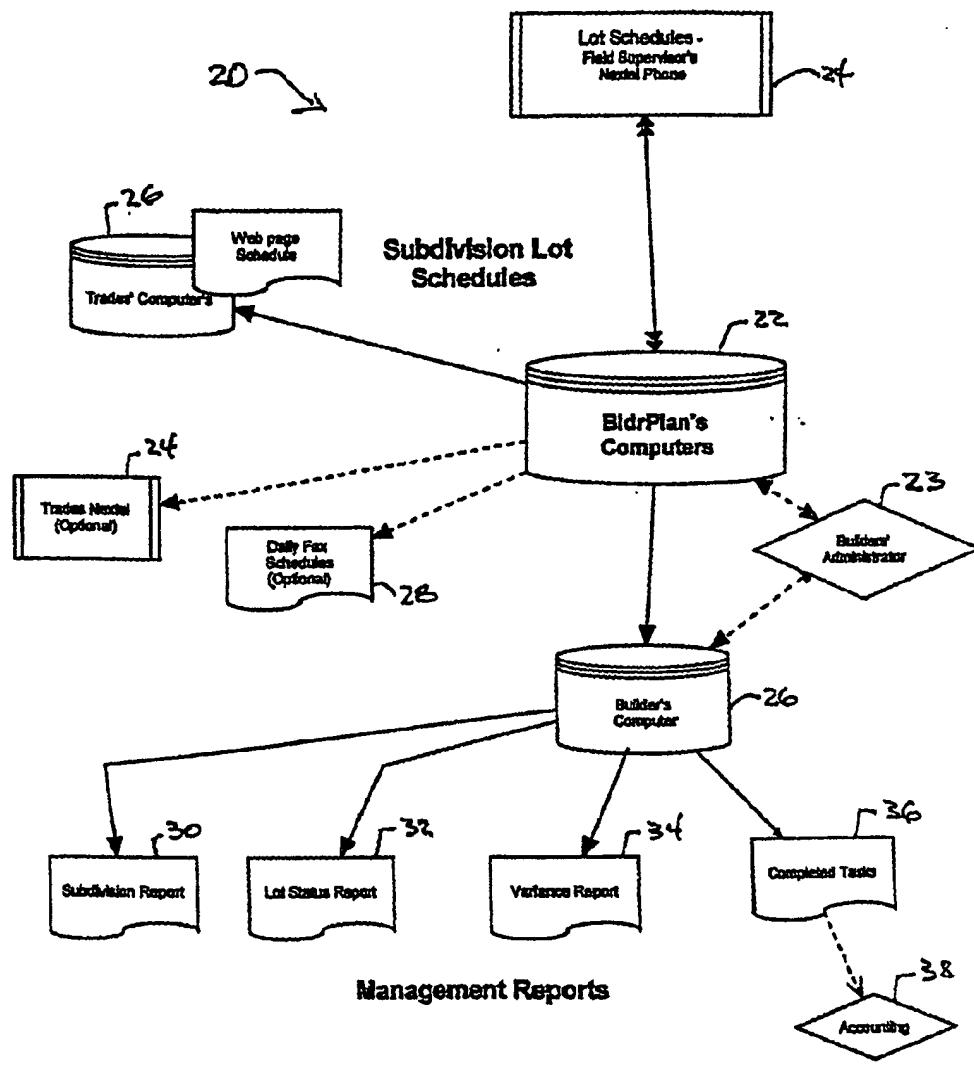


FIG. 1.

CONSTRUCTION SCHEDULING SYSTEM

RELATED APPLICATION

[0001] This application claims priority from co-pending provisional application Serial No. 60/275,318 which was filed on Mar. 13, 2001, and which is incorporated herein by reference in its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates to the field of management of construction projects, more specifically to a system for scheduling a construction project, and particularly for scheduling large construction projects for single family homes where the builder must simultaneously keep track of multiple events at multiple construction sites.

BACKGROUND OF THE INVENTION

[0003] Large scale construction projects, particularly those involving many building sites where construction is proceeding simultaneously, are very difficult to manage efficiently. Such large scale projects involve, for example, the construction of residential developments and planned communities. In these projects, there usually are many building sites at different stages of construction. Many different subcontractors are involved in providing services, and the work by the subcontractors must be appropriately coordinated, so that the building steps are accomplished in the required order. Additionally, many different building materials must be ordered and delivered on time to the construction sites. For efficiency, and for cost control, building materials must not be ordered or delivered too early, or too late. Orders placed too early, and too early deliveries cause increased costs in that funds are tied up for unnecessarily long periods of time. Also, materials delivered too early to a construction site are exposed to the elements and to pilfering for a time longer than necessary. Conversely, orders placed too late may result in materials not delivered on time, causing construction sites to possibly remain idle while awaiting back orders of materials. Such delays also result in added financial costs to the builder.

SUMMARY OF THE INVENTION

[0004] With the foregoing in mind, the present invention advantageously provides a computerized system for large project homebuilders that is designed to provide detailed construction schedules directly to the builder's suppliers and subcontractors, and management reports for the builder's personnel via a password protected internet site.

[0005] The system relies on field supervisors supplying data related to the status of each building project. All data will be input by the builder or his designated administrator. The data are collected and entered into the system preferably by a wireless field communication device, and include recording the completion of scheduled tasks. The field communication device may be a computer, or more preferably may be any type of wireless communication device capable of connecting to a computer network, and particularly a global computer network such as the internet. Most preferably, however, information and data from the field, i.e. sites of construction projects, are entered into the system through a hand-held device such as a cellular telephone, a pager, or a personal digital assistant (also known as a PDA or palmtop computer). All these devices may be connected to the global computer network by on-line communications,

or by wireless service, thus being able to easily communicate with the system directly from a construction job site.

[0006] Information entered through the field communication device and is then transmitted by the computer network to a server computer for storing and processing. The server computer's interactive software program calculates and updates all schedule data for each construction site. The updated schedule is available to the contractor, and to suppliers and subcontractors through internet dynamic web sites. In addition, the system's software provides management reports either periodically or on demand to the responsible builder, to his field supervisor(s), and to trades contractors, as desired. These reports will track all scheduling aspects of each construction site, including performance variances in material deliveries by suppliers, scheduled completion projections, and payment approvals for the builder's use in paying for supplies and services.

[0007] The system and software are designed to be easily modified to adapt to differences in builder operations. A typical builder user of the system would be a local home-builder or the local division of a national homebuilding company with simultaneous construction projects proceeding in multiple subdivisions in a generally contiguous region such as a metropolitan area. The system is designed to provide for multiple trades for the same tasks, as necessary. Data input screens are provided to input subdivision information, model home types, and trades. Level of access to the web site is defined and limited by a hierarchy of builder, field supervisor, and trades, including for example, suppliers and subcontractors.

[0008] The system will help reduce the time required to construct a standard model home unit by providing instant scheduling information with a protected web page for each trade, showing the start and finish dates for all housing units under contract to that trade, preferably sorted by completion date. Additionally, the system will generate management reports that are available both as automatic reminders, and on demand for the builder's personnel to assist their management roles. These management reports preferably include a weekly variance report that lists each specific situation where a trade's completion date varies from the current schedule, and a projected completion report that provides a current estimated completion date for each housing unit. Reports may be sorted by any desired field of information, including by completion date and/or by subdivision.

[0009] The construction management system of the present invention will help reduce the expense of loan interest for housing units under construction, reduce the number of units under simultaneous construction, reduce the overhead expense, reduce the number of personnel required. Alternatively, the construction management system will permit supervisors to increase the number of home construction sites under their control, while maintaining the same number of employees. The system will, additionally, help increase the number of homes delivered to customers on schedule.

[0010] The construction management system is also referred to as a vertical portal management system, as it provides its customer builders with selective access to system screens. The system includes several features and processes. The system's standard functionality will be available to a builder upon activation of the builder's account in the system. New builders may be added to the system

without having to provide additional programming. The system allows each new builder to provide a logo and name for their specific pages.

[0011] The construction management system administrator can maintain the components of the system through an internet interface. For example, builder-specific logos are added by the system administrator through this interface. The system administrator adds new builders, manages billing, maintains passwords to the system, and disconnects builder accounts.

[0012] The system additionally serves as an advertising platform wherein banner ads for various goods and services may be displayed. The system administrator will, through the system's software, track sales of ad spaces, and commissions for a sales force. Security of the system is enhanced by providing that each builder has independent password controlled access from every other builder. Security may be enhanced by providing that each individual field communication device includes its own specific identifier recognized by the system. Additionally, the system is preferably configured so as to not be usable for surfing the internet.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Some of the features, advantages, and benefits of the present invention having been stated, others will become apparent as the description proceeds when taken in conjunction with the accompanying drawings in which:

[0014] FIG. 1 is a typical information flow in the system for a subdivision having lots under construction, according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0015] The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the illustrated embodiments set forth herein. Rather, these illustrated embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

[0016] FIG. 1 and Tables 1-7 show various aspects of a system for scheduling a plurality of simultaneous construction projects. As shown in FIG. 1, the system 20 of the present invention comprises at least one server computer 22 connected to a computer network, software controlling the server computer and capable of scheduling multiple events among a plurality of construction projects, and a plurality of field communication devices 24 each device of said plurality having a display and being capable of wirelessly connecting through the computer network for interactively communicating with the server computer 22 through security controlled access thereto. Typical security controlled access includes password protection, however, in one preferred embodiment of the invention security controlled access includes a unique identifier corresponding to each individual field communication device 24. In yet another preferred embodiment each field communication device 24 includes geographic positioning capability so as to communicate its position to the server computer 22.

[0017] The invention includes a plurality of field communication devices 24 for interacting with the scheduling system 20. Particularly useful devices for field supervisors

and others at the various construction sites are field communication devices 24, which in the invention are intended to comprise cellular telephones, personal digital assistants (also known as PDAs, and as palmtop computers), electronic pagers, and combinations thereof. Most preferably, cellular telephones for use in the inventive system disclosed herein include those capable of communicating by radio transmission in addition to standard cellular telephone communication, for example the well known devices marketed by Nextel.

[0018] Referring again to FIG. 1, by way of explanation, the function of the illustrated example of the invention is as follows. Information and data may be entered into the system server computer 22 by the builder's administrator 23 and by the builder's field supervisors 24. Such data entry may be accomplished either from a personal computer or from the field, more typically, by a hand-held wireless device such as a PDA or a cellular telephone. The server computer 22 communicates with computers of the various trades subcontractors and can provide the subcontractors with a schedule of their tasks. In addition, the server computer 22 may communicate information to a tradesman's cellular telephone, such as a Nextel phone, or may send a schedule to the trade subcontractor via a daily fax transmission 28. The system server computer 22 may also communicate with the builder's computer 26 to provide information regarding various subdivisions 30 in progress, lot status reports 32, variance reports 34, and a log of completed tasks 36, for example. The skilled will know that other information may also be available from the system server computer 22, as desired by the client builder. A log of completed tasks is particularly useful as a component of an accounting system 38, to ascertain that only completed work receives payment.

[0019] Those skilled in the art will recognize that the system of the invention includes a computer network comprising a global computer network, and particularly the internet or world-wide web. In addition to the field communication devices noted above, the system 20 may further comprise at least one client computer 26 interactively communicating with the server computer 22. The system 20 may also include at least one fax machine connected to receive a fax transmission from the server computer 22, a convenient method for disseminating status reports generated by the system, particularly when the fax transmission is effected through the computer network.

[0020] Process aspects of the invention include scheduling a plurality of construction projects. The process comprises creating a plurality of construction schedules in a database stored in a server computer, each construction schedule of the plurality corresponding to an individual construction project. Accessing the database is accomplished by security controlled communication through a computer network, which is preferably a global computer network such as the internet. A typical entry screen display is shown in Table 1, which shows a main menu screen display for the present system. The process also includes updating information for individual construction schedule records in the database, an activity which may be performed by any authorized system user but is generally performed by a builder's field supervisor as job tasks, materials deliveries, or other scheduled events are completed. Payments for such completed events may also be approved and tracked through the system. The method further includes generating a status report for a predetermined construction schedule by processing information in the database to thereby monitor progress of the corresponding construction project. Tables 1-3 show typical screen displays for accessing information through the system 20. For example, Table 2

TABLE 1

Task List				Paid			
Tasks Before	Task#	Description	Duration	Activity	Item	Tasks After	
<u>Create New Task</u>							
101-Building Permit Posting	100	Building Permit Posting	15	5001	<input checked="" type="checkbox"/>	102-Stake Out	
100-Building Permit	101	Building Permit	1		<input type="checkbox"/>	100-Building Permit	
102-Stake Out	102	Stake Out	1		<input checked="" type="checkbox"/>	104-Build Pad	
104-Build Pad	104	Build Pad	1		<input checked="" type="checkbox"/>	106-Dig Footer	
106-Dig Footer	106	Dig Footer	1		<input checked="" type="checkbox"/>	108-Inspect Footer	
108-Inspect Footer	108	Inspect Footer	1		<input checked="" type="checkbox"/>	110-Pour Footer	
110-Pour Footer	110	Pour Footer	1		<input checked="" type="checkbox"/>	112-Stemwall Material	
112-Stemwall Material	112	Stemwall Material	1		<input checked="" type="checkbox"/>	114-Build Stemwall	
						116-Survey	
112-Stemwall Material	114	Build Stemwall	1		<input checked="" type="checkbox"/>	Foundation	
114-Build Stemwall	116	Survey Foundation	10		<input checked="" type="checkbox"/>	118-Backfill Stemwall	
114-Build Stemwall	118	Backfill Stemwall	1		<input checked="" type="checkbox"/>	120-Rough Grade	
116-Survey Foundation	120	Rough Grade	1		<input checked="" type="checkbox"/>	120-Rough Grade	
118-Backfill Stemwall	122	Underground Plumbing	2		<input checked="" type="checkbox"/>	122-Underground Plumbing	
122-Underground Plumbing	124	Sewer Connect	1		<input checked="" type="checkbox"/>	124-Sewer Connect	
122-Underground Plumbing	126	Underground A/C	1		<input checked="" type="checkbox"/>	126-Underground A/C	

[0021]

TABLE 2

Current Trade Companies						
Trade Company	Vendor ID	Contact	Phone	Details	Skills	Delete
<u>Add Trade</u>						
31W Insulation	345	Edward Kunningham	(407)123.4567	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adam's Lumber	sdd	Adams Lumber	(407)456.7891	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Affordable Plumbing	a1204	Nick Knicky	(407)123.7894	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
American Insulation	a1245	Scratch Jones	(407)123.7412	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Apollo marble	a7856	Abe Stone	(352)159.7532	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asbury Trim	375-456	John Ashbury		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bill's landscaping				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CCL Survey				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CDM Enterprises				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Central Supply Company	C425	Jeff Depew	(407)299.1841	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Collis Roofing				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conniglio Grading				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contractor yard				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CRT Framers				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Curry Grading				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D & E Elect				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D & S Tilers				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TABLE 2-continued

<u>Current Trade Companies</u>						
Trade Company	Vendor ID	Contact	Phone	Details	Skills	Delete
Dan Morgan Concrete				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decor Carpet				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DeLaire HVAC				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demo Homes Title Co	dhtc	Jane Jones	(407)564.7895	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demo-Jones	dij	Tom Jones	(407)569.7894	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DeWitt Concrete				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

[0022]

TABLE 3

<u>Builder Administrators</u>						
Name		Login ID	Password	Edit	Delete	
<u>Add Administrator User</u>						
Admin Manager		admin	winner	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Builder Managers</u>						
Name		Login ID	Password	Edit	Delete	
<u>Add Manager User</u>						
Mister Manager		9874	11234	<input type="checkbox"/>	<input type="checkbox"/>	
Ned North		124Shot	stuff	<input type="checkbox"/>	<input type="checkbox"/>	
Scott South		South	Division	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Subdivision Supervisors</u>						
Subdivision	name	Login ID	Password	Edit	Delete	
Country Lake	Joe Smith	cyl	1234	<input type="checkbox"/>	<input type="checkbox"/>	
Nouveau Ridge	Jim Thompson	got	rocks	<input type="checkbox"/>	<input type="checkbox"/>	
Raintree Village	Tom Jones	123	4567	<input type="checkbox"/>	<input type="checkbox"/>	
The Landings	William Williams	Landings	kig	<input type="checkbox"/>	<input type="checkbox"/>	
Whisperin Pines	Jim Smith	hank	test	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Trade Company Users</u>						
Trade Name	Name	Login ID	Password	Edit	Delete	
31W Insulation	Edward Kunningham	sa	sa	<input type="checkbox"/>	<input type="checkbox"/>	
Adam's Lumber	Adams Lumber	adams	lumber	<input type="checkbox"/>	<input type="checkbox"/>	
Affordable Plumbing	Nick Knicky	aff	plumb	<input type="checkbox"/>	<input type="checkbox"/>	
American Insulation	Scratch Jones	american	Insulation	<input type="checkbox"/>	<input type="checkbox"/>	
Apollo marble	Abe Stone	apollo	marble	<input type="checkbox"/>	<input type="checkbox"/>	
Asbury Trim	John Ashbury	asbury	TRIM	<input type="checkbox"/>	<input type="checkbox"/>	
Bill's Landscaping		bill	landscape	<input type="checkbox"/>	<input type="checkbox"/>	

[0023]

TABLE 4

<u>Trade Companies Report</u>					
<u>Subdivision: Raintree Village</u>					
Trade	Vendor ID	Contact	Phone	Email	
31W Insulation	345	Edward Kunningham	(407)123.4567	31winsulation@aol.com	
Affordable Plumbing	a1204	Nick Knicky	(407)123.7894	downhill@aol.com	
American Insulation	a1245	Scratch Jones	(407)123.7412	ichy@who.com	
Apollo marble	a7856	Abe Stone	(352)159.7532	stone@nyt.net	
Bill's Landscaping					
CCL Survey					
CDM Enterprises					

TABLE 4-continued

Trade Companies Report Subdivision: Raintree Village					
Trade	Vendor ID	Contact	Phone	Email	
Central Supply Company	C425	Jeff Depew	(407)299.1841	depew@centsupply.net	
Collis Roofing					
Contractor yard					
D & E Elect					
D & S Tilers					
Decor Carpet					
Demo Homes Title Co	dhtc	Jane Jones	(407)564.7895	dhtc@msn.com	
Demo Jones	dij	Tbm Jones	(407)569.7894	tjones@demo.homes	
DeWitt Concrete					
DQM					
East Coast Lumber					
Empire Fence					
FL Power	FLP				
Florida Pools					
General Elect					
Hermes Stone Co	herme	Sam Hermes	(407)325.3456		
Hudson Pest Control			(407)265.8974	dorothyhermes@sym.com	
Jana Lucas					
Lucas Const					
Maddox Aluminum					
Mail Box Installer	3456	Ed Flanagan			
Masonry Supply Co	msc	Ham Hammocks	(407)235.7894	hammy@dsl2.com	
One Stop HVAC					
Orange County	occ		(407)579.4797		
Orange County	OCBD		(407)579.4797	ocbd@msl.org	
Building Dept					
Orlando Muni Company	458-789	Bill Toms	(407)456.9874	omc@aol.com	
Raphael Garcia					
RCS					
Sam Wilson Masonry	345-456	Jim Wilson	(312)987.6547	blockhead@aol.com	
Smyth Engineers	smyth	Tom Jones	(407)236.4875	smytheng@aol.com	
Sonshine Drywall					
Spurlock Painting					
Stairbuilders Inc.	stair	Swede Swensen	(312)987.4561	sweedes@sty.com	
Top Notch Cleaning					

[0024]

TABLE 5

Lot Status Report Lot: 108				
Lot Number	Task	Start Date	End Date	Duration
108	Lintel Inspection	Nov. 30, 2001	Nov. 30, 2001	1
108	Underground A/C	Jan. 9, 2002	Jan. 8, 2002	0
108	Pour Lintel	Mar. 7, 2002	Mar. 7, 2002	1
108	Truss Materials	Mar. 8, 2002	Mar. 8, 2002	1
108	Frame Materials	Mar. 8, 2002	Mar. 8, 2002	1
108	Set	Mar. 11, 2002	Mar. 15, 2002	5
108	Trusses/Sheathing			
108	Wall/Roof Inspection	Mar. 18, 2002	Mar. 18, 2002	1
108	Exterior Glass Blocks	Mar. 18, 2002	Mar. 18, 2002	1
108	Rough Stairs	Mar. 18, 2002	Mar. 18, 2002	1
108	SGD/Windows	Mar. 18, 2002	Mar. 20, 2002	3
108	Interior Partitions	Mar. 18, 2002	Mar. 20, 2002	3
108	Water Services	Mar. 18, 2002	Mar. 18, 2002	1
108	Construction Clean#1	Mar. 21, 2002	Mar. 21, 2002	1
108	Exterior Doors Set	Mar. 21, 2002	Mar. 21, 2002	1
108	Preface Fireplace	Mar. 21, 2002	Mar. 21, 2002	1
108	Marble Tub	Mar. 21, 2002	Mar. 21, 2002	1
108	Rough Plumbing	Mar. 21, 2002	Mar. 25, 2002	5

TABLE 5-continued

Lot Status Report Lot: 108				
Lot Number	Task	Start Date	End Date	Duration
108	Rough A/C	Mar. 22, 2002	Mar. 25, 2002	4
108	Rough Electric	Mar. 26, 2002	Apr. 1, 2002	7
108	A/C Inspections	Mar. 26, 2002	Mar. 26, 2002	1
108	Plumbing	Mar. 26, 2002	Mar. 26, 2002	1
108	Inspections			
108	Electrical	Apr. 2, 2002	Apr. 2, 2002	1
108	Inspections			
108	PreDrywall Orientation	Apr. 2, 2002	Apr. 2, 2002	1
108	Roof - Materials	Apr. 2, 2002	Apr. 2, 2002	1
108	Frame Inspections	Apr. 3, 2002	Apr. 3, 2002	1
108	Roof - Installation	Apr. 3, 2002	Apr. 8, 2002	6
108	Wire Lath	Apr. 4, 2002	Apr. 4, 2002	1
108	Insulation	Apr. 4, 2002	Apr. 4, 2002	1
108	Drywall - Material	Apr. 4, 2002	Apr. 4, 2002	1
108	Stucco	Apr. 5, 2002	Apr. 10, 2002	6
108	Insulation	Apr. 5, 2002	Apr. 5, 2002	1
108	Inspection			
108	Drywall - Hang & Finish	Apr. 8, 2002	Apr. 16, 2002	9
108	Stone Elevation	Apr. 11, 2002	Apr. 15, 2002	5
108	Exterior Painting	Apr. 11, 2002	Apr. 12, 2002	2

TABLE 5-continued

Lot Status Report Lot: 108				
Lot Number	Task	Start Date	End Date	Duration
108	Pool Shell	Apr. 11, 2002	Apr. 16, 2002	6
108	Aluminum Soffits	Apr. 15, 2002	Apr. 16, 2002	2
108	Window Sills	Apr. 17, 2002	Apr. 17, 2002	1
108	Construction	Apr. 17, 2002	Apr. 17, 2002	1
Clean #2				

TABLE 5-continued

Lot Status Report Lot: 108				
Lot Number	Task	Start Date	End Date	Duration
108	Trim - Materials	Apr. 17, 2002	Apr. 17, 2002	1
108	Screen Enclosure	Apr. 17, 2002	Apr. 17, 2002	1
108	Trim - Installation	Apr. 18, 2002	Apr. 18, 2002	1

[0025]

TABLE 6

Variance Report All SubDivisions All trades Start Date: Feb. 9, 2002 End Date: Mar. 9, 2002						
Trade	Lot#	Task Description	Scheduled Completion	Actual Completion	Duration	Variance
D & S Tilers	RTV-102	232 Ceramic-Bath	Mar. 8, 2002	Mar. 9, 2002	2	1
Dewitt Concrete	RTV-102	296 Flatwork-Pour/Strip	Mar. 8, 2002	Mar. 9, 2002	1	1
DeWitt Concrete	LDG-252	142 Slab Pour	Feb. 21, 2002	Feb. 22, 2002	9	1
Raphael Garcia	RTV-101	172 Exterior Doors Set	Mar. 7, 2002	Mar. 9, 2002	1	2
Apollo marble	RTV-101	176 Marble Tub	Mar. 7, 2002	Mar. 9, 2002	1	2
One Stop HVAC	RTV-102	240 A/C Trim	Mar. 7, 2002	Mar. 9, 2002	1	2
Orange County	RTV-102	294 Flatwork-Inspect	Mar. 7, 2002	Mar. 9, 2002	1	2
Building Dept						
Sonshine Drywall	RTV-101	170 Interior Partitions	Mar. 6, 2002	Mar. 9, 2002	3	3
Spurlock Painting	RTV-102	230 Paint-Interior	Mar. 5, 2002	Mar. 9, 2002	2	4
DeWitt Concrete	RTV-102	292 Flatwork-Form	Mar. 4, 2002	Mar. 9, 2002	1	5

[0026]

TABLE 7

Payment Approval Report All SubDivisions All trades Start Date: Feb. 28, 2002 End Date: Mar. 9, 2002				
--	--	--	--	--

Trade	Vendor ID	Subdivision	Lot No	Activity ID	Task Description	Completion Date
Affordable Plumbing	a1204-103	Raintree Village	RTV-103		Rough Plumbing	Mar. 1, 2002
Affordable Plumbing	a1204-106	Raintree Village	RTV-106		Rough Plumbing	Mar. 1, 2002
Affordable Plumbing	a1204-120	Raintree Village	RTV-120		Rough Plumbing	Mar. 1, 2002
Apollo marble	a7856-103	Raintree Village	RTV-103		Marble Tub	Mar. 1, 2002
Apollo marble	a7856-106	Raintree Village	RTV-106		Marble Tub	Mar. 1, 2002
Apollo marble	a7856-120	Raintree Village	RTV-120		Marble Tub	Mar. 1, 2002
Apollo marble	a7856-101	Raintree Village	RTV-101		Marble Tub	Mar. 9, 2002
Collis Roofing	-111	Raintree Village	RTV-111		Roof - Installation	Mar. 1, 2002
D & E Elect	-103	Raintree Village	RTV-103		Rough Electric	Mar. 1, 2002
D & E Elect	-117	Raintree Village	RTV-117		Rough Electric	Mar. 1, 2002
D & E Elect	-155	Raintree Village	RTV-155		Rough Electric	Mar. 1, 2002
D & E Elect	-101	Raintree Village	RTV-101		Rough Electric	Mar. 9, 2002
D & E Elect	-102	Raintree Village	RTV-102		Electrical Trim	Mar. 9, 2002
D & S Tilers	-102	Raintree Village	RTV-102		Ceramic - Bath	Mar. 9, 2002
DeWitt Concrete	-102	Raintree Village	RTV-102		Flatwork - Form	Mar. 9, 2002

TABLE 7-continued

Payment Approval Report All SubDivisions All trades Start Date: Feb. 28, 2002 End Date: Mar. 9, 2002						
Trade	Vendor ID	Subdivision	Lot No	Activity ID	Task Description	Completion Date
DeWitt Concrete	-102	Raintree Village	RTV-102		Flatwork - Pour/Strip	Mar. 9, 2002
Jana Lucas	-101	Raintree Village	RTV-101		Construction Clean#1	Mar. 1, 2002
Jana Lucas	-102	Raintree Village	RTV-102		Construction Clean#2	Mar. 1, 2002
Jana Lucas	-122	Raintree Village	RTV-122		Construction Clean#1	Mar. 1, 2002
Lucas Const	-102	Raintree Village	RTV-102		Trim - Installation	Mar. 1, 2002
One Stop HVAC	-103	Raintree Village	RTV-103		Rough A/C	Mar. 1, 2002
One Stop HVAC	-106	Raintree Village	RTV-106		Rough A/C	Mar. 1, 2002
One Stop HVAC	-117	Raintree Village	RTV-117		Rough A/C	Mar. 1, 2002
One Stop HVAC	-101	Raintree Village	RTV-101		Rough A/C	Mar. 9, 2002
One Stop HVAC	-102	Raintree Village	RTV-102		A/C Trim	Mar. 9, 2002
Orlando Muni Company	458-789-120	Raintree Village	RTV-120		Water Services	Mar. 1, 2002
Orlando Muni Company	458-789-122	Raintree Village	RTV-122		Water Services	Mar. 1, 2002
Raphael Garcia	-103	Raintree Village	RTV-103		Exterior Doors Set	Mar. 1, 2002
Raphael Garcia	-120	Raintree Village	RTV-120		Exterior Doors Set	Mar. 1, 2002
Raphael Garcia	-101	Raintree Village	RTV-101		Exterior Doors Set	Mar. 9, 2002
RCS	-101	Raintree Village	RTV-101		Preface Fireplace	Mar. 1, 2002
RCS	-103	Raintree Village	RTV-103		Preface Fireplace	Mar. 1, 2002
RCS	-120	Raintree Village	RTV-120		Preface Fireplace	Mar. 1, 2002
Sam Wilson Masonry	345-456-101	Raintree Village	RTV-101		Exterior Glass Blocks	Mar. 1, 2002
Sam Wilson Masonry	343-456-122	Raintree Village	RTV-122		Exterior Glass Blocks	Mar. 1, 2002
Sonshine Drywall	-120	Raintree Village	RTV-120		Interior Partitions	Mar. 1, 2002
Sonshine Drywall	-122	Raintree Village	RTV-122		Interior Partitions	Mar. 1, 2002
Sonshine Drywall	-41	Country Lake	CNL-41		Interior Partitions	Mar. 4, 2002

[0027] shows a screen display for the "models" choice listed in the main menu screen display of Table 1, and Table 3 shows a screen display for the "templates" choice listed in the main menu screen display of Table 1. Tables 4-7 show by way of example several types of reports which may be generated through the system. Table 4 shows a typical screen display for a specific subdivision. Table 5 shows a screen display for the "lot status report." Table 6 shows a screen display for a "variance report", and Table 7 shows a screen display for a "payment approval report" choice. As noted elsewhere herein, access to information and report generation may be restricted according to type of user.

[0028] The process of the invention may include various levels of access to the system, for example, wherein creating a construction schedule is restricted to a system administrator. Accessing the system for updating of an individual construction project, as shown in Tables 4-7, may be restricted to a field supervisor for the construction project's responsible builder. Further, a level of accessing the system may be restricted to a person selected from a system administrator, a field supervisor for a responsible builder, a trades contractor, and a combination thereof. The skilled will appreciate that accessing and updating most preferably comprise wireless communications, so that these activities are easily carried out from the field.

[0029] The process also includes generating various status reports, examples of which are shown in FIGS. 9-15, and which can be set up to occur at predetermined time intervals to thereby monitor periodic construction project progress. In addition to periodic status reports, generating may also occur on demand from a system administrator, a field

supervisor for a responsible builder, a trades contractor, and a combination thereof. Furthermore, generating may additionally comprise communicating a daily status report by fax transmission, and particularly wherein the fax transmission is made over the computer network.

[0030] The system process provides the option of contacting a responsible trades contractor by wireless communication responsive to a status report indicating a scheduling delay. For example, when a field supervisor instructs the system to generate a status report, and the report indicates a schedule variance at a particular construction site, the field supervisor's field communication device will present the option of communicating with the field communication device for the trade contractor or other person responsible for the scheduling variance. By this process, the builder's field supervisor may inquire as to the cause and/or correction of the scheduling variance. It should be apparent that system generated status reports are accessible from or transmitted to field communication devices, so that current construction project scheduling information is always available in the field.

[0031] In operation of the system, a builders field supervisor may access scheduling information for a specified subdivision under construction. A display associated with the field communication device will show a list of active construction sites, or lots, within the selected subdivision. Upon selection of a desired lot, the display will show the schedule of upcoming tasks and events for the selected lot, for example, as shown in Table 5. The field supervisor may then select an individual task or event and may update the status of the particular task or event. The system will also

offer the field supervisor the option of automatically contacting the trade contractor or other person responsible for the selected task or event, when the field communication device is a cellular phone a phone call will be the automatically initiated contact.

[0032] As a builder's field supervisor updates a particular task or event, the system will update the scheduling information in the database, which update will also become accessible through each trade's individual internet web page in the system. The skilled will appreciate the advantages of the system, wherein each trade contractor may access the system to display his or her own web site listing all scheduled tasks and events for the particular trade contractor.

[0033] As noted above, the system will provide various status reports, either on a predetermined time basis, or on demand by an authorized user. For example, a subdivision status report would include all field activity and projected construction schedules for sites within the subdivision. Within a subdivision status report display, an individual lot may be selected to obtain only the scheduling information pertinent to that specific lot construction site. Variance reports showing every scheduling delay may be generated as desired, for example, by trade across several subdivisions, by single subdivision, or by other desired parameters. For example, a variance report for all trades and all subdivisions is shown in Table 6. Billing status reports, as shown in Table 7, may also be generated to show payments due and/or made to the various trades and suppliers for completed tasks and events. Such billing reports may help reduce or eliminate the need for individual invoicing, and also reduce the time-consuming field approval process.

[0034] It will be appreciated that the present system also provides a measure of personnel supervision, particularly when implementing a preferred embodiment of the system including field communication devices having geographic positioning capabilities. For example, the movement of each field communication device may be tracked by the system, and tracking reports may be generated accordingly.

[0035] In the drawings and specification, there have been disclosed a typical preferred embodiment of the invention, and although specific terms are employed, the terms are used in a descriptive sense only and not for purposes of limitation. The invention has been described in considerable detail with specific reference to these illustrated embodiments. It will be apparent, however, that various modifications and changes can be made within the spirit and scope of the invention as described in the foregoing specification and as defined in the appended claims.

That which is claimed:

1. A system for scheduling a plurality of simultaneous construction projects, the system comprising:

at least one server computer connected to a computer network;

software capable of scheduling multiple events among a plurality of construction projects, said software controlling said at least one server computer; and

a plurality of field communication devices each device of said plurality having a display and being capable of wirelessly connecting through the computer network

for interactively communicating with said at least one server computer through security controlled access thereto.

2. The system of claim 1, wherein said plurality of field communication devices comprises devices selected from cellular telephones, personal digital assistants, pagers, and combinations thereof.

3. The system of claim 1, wherein said plurality of field communication devices comprises at least one cellular telephone capable of communicating by radio transmission in addition to cellular telephone communication.

4. The system of claim 1, wherein the computer network comprises a global computer network.

5. The system of claim 1, further comprising at least one client computer interactively communicating with said at least one server computer.

6. The system of claim 1, further comprising at least one fax machine connected to receive a fax transmission from said at least one server computer.

7. The system of claim 1, wherein said fax transmission is effected through the computer network.

8. The system of claim 1, wherein the security controlled access comprises password protection.

9. A system for scheduling a plurality of simultaneous construction projects, the system comprising:

at least one server computer connected to a computer network;

software capable of scheduling multiple events among a plurality of construction projects, said software controlling said at least one server computer; and

a plurality of field communication devices each device of said plurality having a display and being capable of wirelessly connecting through the computer network for interactively communicating with said at least one server computer through a security controlled access including a unique identifier corresponding to each individual field communication device.

10. The system of claim 9, wherein said plurality of field communication devices comprises devices selected from cellular telephones, personal digital assistants, pagers, and combinations thereof.

11. The system of claim 9, wherein said plurality of field communication devices comprises at least one cellular telephone capable of communicating by radio transmission in addition to cellular telephone communication.

12. The system of claim 9, wherein the computer network comprises a global computer network.

13. The system of claim 9, further comprising at least one client computer interactively communicating with said at least one server computer.

14. The system of claim 9, further comprising at least one fax machine connected to receive a fax transmission from said at least one server computer.

15. The system of claim 9, wherein said fax transmission is effected through the computer network.

16. The system of claim 9, wherein the security controlled access comprises password protection.

17. A system for scheduling a plurality of simultaneous construction projects, the system comprising:

at least one server computer connected to a computer network;

software capable of scheduling multiple events among a plurality of construction projects, said software controlling said at least one server computer; and

a plurality of field communication devices each device of said plurality having a display, being capable of wirelessly connecting through the computer network for interactively communicating with said at least one server computer through security controlled access thereto, and including geographic positioning capability so as to communicate position to said at least one server computer.

18. The system of claim 17, wherein said plurality of field communication devices comprises devices selected from cellular telephones, personal digital assistants, pagers, and combinations thereof.

19. The system of claim 17, wherein said plurality of field communication devices comprises at least one cellular telephone capable of communicating by radio transmission in addition to cellular telephone communication.

20. The system of claim 17, wherein the computer network comprises a global computer network.

21. The system of claim 17, further comprising at least one client computer interactively communicating with said at least one server computer.

22. The system of claim 17, further comprising at least one fax machine connected to receive a fax transmission from said at least one server computer.

23. The system of claim 17, wherein said fax transmission is effected through the computer network.

24. The system of claim 17, wherein the security controlled access comprises password protection.

25. A process for scheduling a plurality of construction projects, the method comprising:

creating a plurality of construction schedules in a database stored in a server computer, each construction schedule of the plurality corresponding to an individual construction project;

accessing the database by security controlled communication through a computer network;

updating information for individual construction schedule records in the database;

generating a status report for a predetermined construction schedule by processing information in the database to thereby monitor progress of the corresponding construction project.

26. The process of claim 25, wherein creating is restricted to a system administrator.

27. The process of claim 25, wherein updating of an individual construction project is restricted to a field supervisor for a responsible builder.

28. The process of claim 25, wherein accessing is restricted to a person selected from a system administrator, a field supervisor for a responsible builder, a trades contractor, and a combination thereof.

29. The process of claim 25, wherein accessing comprises wireless communication.

30. The process of claim 25, wherein updating comprises wireless communication.

31. The process of claim 25, wherein generating occurs at predetermined time intervals to thereby monitor periodic construction project progress.

32. The process of claim 25, wherein generating occurs on demand from a system administrator, a field supervisor for a responsible builder, a trades contractor, and a combination thereof.

33. The process of claim 25, wherein generating further comprises communicating a daily status report by fax transmission.

34. The process of claim 25, wherein generating further comprises the option of contacting a responsible trades contractor by wireless communication responsive to a status report indicating a scheduling delay.

35. The process of claim 25, further comprising communicating a generated status report to at least one field communication device.

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